KACHEMAK BAY RESEARCH RESERVE

Our Landscape Over Time

Tracking Long-term Trends in Coastal Uplift, Sea Level Rise, and Salt Marshes

Currently in Kachemak Bay the landscape is lifting as the sea level rises on a global scale. This coastal uplift is due to changes still occurring from the 1964 earthquake and rapid melting of heavy glaciers in the surrounding ice fields. Our coastal habitat and our communities are likely influenced by coastal uplift, but these influences of land-level changes have not yet been documented. Coastal communities rely on the near-shore habitat for transportation, safe harbor infrastructure, and food resources; so it is important to understand the physical processes that affect the ways in which we use the coast.

The Reserve has been awarded a **Science Collaborative Grant** from the University of New Hampshire to conduct a 3-year study to assess coastal uplift, local sea level rise, and to begin a long-term monitoring program for salt marsh ecosystems in Kachemak Bay. This study will build upon existing work on coastal processes developed by the University of Alaska, Fairbanks and the Kachemak Bay Research Reserve and will provide us with a more accurate estimation of land and sea change rates throughout the Bay. This information can be applied to local community planning such as Climate Change adaptation.

The Science Collaborative grant involves coastal decision makers in the scientific process to ensure that results of the study are useful to local communities. To help the Reserve provide the best product, the intended users of the information will participate in the study through quarterly meetings and will provide input on the design and progress.

The goals of the study are to:

- Develop a report that: summarizes a precise model of rates of vertical change in the landscape surrounding Kachemak Bay; provides an estimate of local sea level rise; provides information on trends in biological diversity for glacial-fed and other salt marsh habitats within Kachemak Bay
- Establish a long-term monitoring program to continue monitoring land and sea level changes over time in salt marshes
- Provide the local communities with a team of well-trained citizen scientists who will be able to participate in future monitoring activities with the Reserve
- Support our intended users of the information so that they know how to apply the information generated from the study and will be fluent in the ideas, methods, and terms that describe geological and biological changes which influence coastal uplift and sea level rise
- Identify additional users of the information




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